What is claimed is:

CLAIM 1. A thermal spreading device disposable between electronic circuitry and a heat sink, the thermal spreading device comprising:

a substrate having a first face and a second face, the second face being disposed parallel to the first face, the material of which said substrate is fabricated having a first thermal conductivity value in a direction parallel to the faces and a second thermal conductivity value in a direction normal to the faces, the second thermal conductivity value being less than the first thermal conductivity value; and

a plurality of conduits extending through said substrate from the first face thereof to the second face thereof, the material of which each conduit of said plurality of conduits is fabricated having a thermal conductivity value associated therewith, the thermal conductivity value of each conduit being greater than the second thermal conductivity value of said substrate.

CLAIM 2. The thermal spreading device of claim 1 wherein said substrate is fabricated from a material selected from the group consisting of carbon and carbon composite.

CLAIM 3. The thermal spreading device of claim 1 wherein each conduit of said plurality of conduits is defined by a rod having a substantially circular cross sectional geometry.

CLAIM 4. The thermal spreading device of claim 1 wherein each conduit of said plurality of conduits is positioned to be substantially equidistant from each other conduit of said plurality of conduits.

CLAIM 5. The thermal conduction medium of claim 1 wherein the density of said plurality of conduits is variable over an area of said substrate.

CLAIM 6. The thermal spreading device of claim 1 wherein each conduit of said plurality of conduits is fabricated from a material selected from the group consisting of copper, aluminum, carbon, and carbon composite.

CLAIM 7. A thermal conduction package for an arrangement of electronic circuitry, the thermal conduction package comprising:

an adhesive layer disposed on the electronic circuitry;

a substrate disposed on said adhesive layer, said substrate having a first thermal conductivity value in a first direction parallel to said adhesive layer and a second thermal conductivity value in a second direction normal to said adhesive layer, the second thermal conductivity value of said substrate being less than the first thermal conductivity value of said substrate;

a thermal paste disposed on said substrate;

a plurality of thermally conductive conduits extending through said substrate from said adhesive layer to said thermal paste, each conduit of said plurality of conduits having a thermal conductivity value associated therewith, the thermal conductivity of each conduit being greater than the second thermal conductivity value of said substrate; and

a heat sink device disposed on said thermal paste.

CLAIM 8. The thermal conduction package of claim 7 wherein said adhesive layer is a material selected from the group consisting of solder and epoxy.

CLAIM 9. The thermal conduction package of claim 7 wherein each conduit of said plurality of conduits extends from a first face of said substrate in a linear direction to an opposingly positioned second face of said substrate.

CLAIM 10. The thermal conduction package of claim 7 wherein each conduit of said plurality of conduits is substantially equidistant from each other conduit of said plurality of conduits.

CLAIM 11. The thermal conduction package of claim 7 wherein the density of said plurality of conduits is variable over an area of said substrate, the density being greater proximate the electronic circuitry.

CLAIM 12. The thermal conduction package of claim 7 wherein each conduit of said plurality of conduits is fabricated from a material selected from the group consisting of copper, aluminum, carbon, and carbon composite.

CLAIM 13. The thermal conduction package of claim 7 wherein said substrate is fabricated from a carbon composite material.

CLAIM 14. The thermal conduction package of claim 7 wherein said thermal paste is a natural or synthetic oil-based compound with thermally conductive particle filler material.

CLAIM 15. A method of fabricating a thermal spreading device, the method comprising:

arranging a plurality of thermally conductive rods such that the rods extend longitudinally in a common direction;

disposing a molding material radially about the longitudinally extending rods; and

hardening the molding material around the plurality of thermally conductive rods.

CLAIM 16. The method of claim 15 wherein said arranging of the plurality of rods is such that a density of the arrangement of the rods is variable over a cross sectional area of the arrangement.

CLAIM 17. The method of claim 15 wherein said arranging comprises,

mounting the plurality of rods in an array; and

securing the plurality of rods in the array with a fastening device.

CLAIM 18. The method of claim 14 wherein said hardening of the molding material further comprises curing the molding material.

CLAIM 19. The method of claim 14 further comprising cutting the hardened molding material into slices in a direction perpendicular to the direction in which the rods extend.

CLAIM 20. The method of claim 19 further comprising polishing a face of the cut slice of hardened molding material.

CLAIM 21. A method of fabricating a thermal spreading device, the method comprising:

forming holes into a substrate; and

inserting a thermally conductive rod into each of the holes formed in the substrate, said inserting being effectuated under a compressive force.

CLAIM 22. The method of claim 21 further comprising cutting the substrate into slices in a direction perpendicular to the direction in which the rods extend.

CLAIM 23. The method of claim 22 further comprising polishing a face of the cut slice of the substrate.

CLAIM 24. A method of fabricating a thermal spreading device, the method comprising:

forming holes into a substrate;

heating the substrate to enlarge the holes;

inserting a thermally conductive rod into each of the holes; and

cooling the substrate to reduce the cross sectional area of the holes, thereby causing the rods to be retained in the holes.

CLAIM 25. The method of claim 24 further comprising cutting the substrate into slices in a direction perpendicular to the direction in which the rods extend.

CLAIM 26. The method of claim 25 further comprising polishing a face of the cut slice of substrate.